

bution of marine animals has features which diverge from those which characterize the distribution of land-animals—according to the views now prevalent; and, further, that the absence of impassable barriers does not, of necessity, lead to a cosmopolitan habit in those which can avail themselves of the opportunity. In the case of land-animals much weight has been placed on this check to migration, so that it is a prominent feature in the literature of the subject. Further, the conditions in the ocean tend to the permanence of the various types, which, with their wide distribution, varied sites, and uniform medium, have much to favour them in the struggle for existence. The vast or cosmopolitan distribution of many forms is thus conspicuous.

Again, in the present state of knowledge, the division of the ocean into regions characterized by special faunistic features can with difficulty, to say the least, meet with support from all the groups of marine animals.

This preliminary survey of the subject, moreover, is interesting insofar as it discloses no serious obstacle to the introduction of European food-fishes, shell-fishes, crabs, and other forms to various parts of the world—especially those of primary importance to man. If, for instance, the same or a closely allied shell-fish or annelid can live and flourish equally in the waters of Britain and those of the Cape, there is probably no insuperable barrier to the transference of a valuable food-fish from the one to the other. The recent transmission of adult plaice from Scotland to Australia has already met with success, and the same experiment may soon be carried out at the Cape.

Though at present, broadly speaking, no definite plan of distribution amongst the families of oceanic forms is discernible—very few families being monopolized by one region to the exclusion of the others,—future investigators may enable such a plan to be outlined; yet the number of cosmopolitan forms, and of others which range almost as widely, will always give a tone to the picture of the sea in contrast with that of the land.

XIV.—*Descriptions of new Frogs and Snakes from Yunnan.*
By G. A. BOULENGER, F.R.S.

IN a recent number of these 'Annals' * I described a new gecko, *Gehyra yunnanensis*, obtained at Yunnan Fu (altitude

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about 6000 feet) by Mr. John Graham, of the China Inland Mission. The Natural History Museum has since received from the same gentleman further collections made in the same district, and among them I had the pleasure of finding examples of two new frogs and five new snakes, of which descriptions are here offered.

Rana pleuraden.

Vomerine teeth in two small oblique groups between the choanæ. Head moderate, as long as broad; snout obtusely pointed, prominent, as long as the orbit; canthus rostralis obtuse; loreal region oblique, concave; nostril equally distant from the eye and from the end of the snout; inter-orbital region narrower than the upper eyelid; tympanum very distinct, two thirds to three fourths the diameter of the eye. Fingers and toes rather slender, obtusely pointed; first finger extending beyond second; toes half-webbed; subarticular tubercles rather feeble; a small oval inner metatarsal tubercle. The tibio-tarsal articulation reaches between the eye and the tip of the snout. Skin smooth or with small warts; a moderately broad, very prominent, dorso-lateral glandular fold; no other folds on the body. Olive-brown or greyish above, spotted with black; a light vertebral streak usually present; a dark brown or blackish band on each side of the head, passing through the eye and involving the tympanum; a whitish streak along the upper lip; limbs with more or less regular black cross-bars; sometimes a light line along the inner side of the leg, continued to the outer toe; hinder side of thighs marbled black and yellow; lower parts white, throat sometimes brownish. Male with a vocal sac on each side, forming loose folds on the throat, and a very large flat gland on each side of the body, above and behind the shoulder.

From snout to vent 63 mm.

Several specimens.

Callula verrucosa.

Snout rounded, not prominent, as long as the eye; inter-orbital space as broad as the upper eyelid. Fingers slender, with slightly swollen tips, first a little shorter than second; toes moderate, nearly half-webbed, the tips blunt, not swollen, fifth considerably shorter than third; subarticular tubercles well developed; metatarsal tubercles two, oval, compressed, the inner very large. The tibio-tarsal articulation reaches the shoulder or between the shoulder and the eye. Upper

parts with large smooth warts; a fold from the eye to the shoulder. Dark greyish brown above, uniform or with six longitudinal rows of small darker spots; lower parts uniform dirty white.

From snout to vent 46 mm.

Three specimens, from the garden of the Mission station.

Closely allied to *C. picta*, Bibr.

Polyodontophis Grahami.

Rostral once and a half as broad as deep, just visible from above; suture between the internasals nearly as long as that between the præfrontals; frontal much longer than its distance from the end of the snout, shorter than the parietals; loreal as long as deep; one præocular; two postoculars, only the upper in contact with the parietal; temporals 2 + 2; eight upper labials, fourth and fifth entering the eye; four lower labials in contact with the anterior chin-shields, which are longer than the posterior. Scales in 17 rows. Ventrals 185; anal divided; subcaudals 83. Reddish brown above, with three dark brown longitudinal lines, which become more and more indistinct after the anterior fourth of the body; head dark brown, with a black streak on each side and a black bar behind the parietals; a white streak along the upper labials and another behind the occipital bar; lower parts white, with a black dot at the outer end of each shield; on the posterior part of the body and on the tail these dots are confluent into a black lateral line.

Total length 350 mm.; tail 60.

A single specimen.

Intermediate between *P. collaris*, Gray, and *P. sagittarius*, Cant.

Tropidonotus quadrilineatus.

Eye moderate. Rostral broader than deep, just visible from above; internasals broadly truncate anteriorly, a little longer than broad, nearly as long as the præfrontals; frontal once and a half as long as broad, as long as its distance from the end of the snout, much shorter than the parietals; loreal as long as deep; one præ- and two postoculars; temporals 2 + 1; seven or eight upper labials, third and fourth or fourth and fifth entering the eye; four lower labials in contact with the anterior chin-shields, which are shorter than the posterior. Scales in 19 rows, all keeled, the dorsals strongly. Ventrals 153; anal entire; subcaudals 51. Pale olive-brown above, with two black vertebral lines, widening on the nape and occiput,

and a broad black lateral band extending from the eye to the end of the tail; black lines on the sutures between the upper labial shields, which are white; lower parts bright yellow.

Total length 435 mm.; tail 65.

A single male specimen.

This species appears to be allied to *T. Pealii*, W. Sclater, from Assam.

Tropidonotus octolineatus.

Eye moderate. Rostral broader than deep, just visible from above; internasals broadly truncate anteriorly, as long as broad, nearly as long as the præfrontals; frontal once and a half as long as broad, a little longer than its distance from the end of the snout, much shorter than the parietals; loreal as long as deep; one præ- and two postoculars; temporals 2+2; nine upper labials, fourth, fifth, and sixth entering the eye; five lower labials in contact with the anterior chin-shields, which are a little shorter than the posterior. Scales in 19 rows, dorsals moderately keeled, laterals feebly, outer row smooth. Ventrals 152; anal divided; subcaudals 58. Pale greyish brown above, with two black longitudinal lines, separated by five series of scales, these lines widening on the nape and passing into the dark brown colour of the upper surface of the head; a black lateral band extending from the eye to the end of the tail; a black zigzag lateral line, formed by the outer edges of the ventral shields; an interrupted black line on each side of the belly, formed by a short streak on each shield; upper lip and lower parts yellow, the outer ends of the ventral shields reddish; black spots or vertical bars on the upper lip.

Total length 610 mm.; tail 125.

A single female specimen.

This species is most nearly allied to *T. parallelus*, Blgr.

Tropidonotus pleurotaenia.

Eye moderate. Rostral broader than deep, just visible from above; internasals narrowly truncate anteriorly, a little longer than broad, a little shorter than the præfrontals; frontal once and a half as long as broad, longer than its distance from the end of the snout, shorter than the parietals; loreal as long as deep; one præ- and three postoculars; temporals 2+1; eight upper labials, third, fourth, and fifth entering the eye; five lower labials in contact with the anterior chin-shields, which are as long as the posterior. Scales in 19 rows, feebly keeled, two outer rows smooth. Ventrals

148; anal divided; subcaudals 66. Yellowish olive above, with two very indistinct darker streaks along the back; a blackish lateral band, extending from the eye to the end of the tail; scales of outer row greyish, edged with black; upper lip white, with some black on the sutures between the shields; lower parts uniform bright yellow.

Total length 350 mm.; tail 85.

A single male specimen.

Allied to *T. modestus*, Gthr.

Pseudoxenodon sinensis.

Very closely allied to *P. macrops*, Blyth, with which specimens from Sze Chuen have been confounded by Günther and by myself. Distinguished by having usually only seven upper labials, third and fourth entering the eye, 19 or 20 scales on the middle of the body as well as on the neck, a smaller number of ventrals, viz. 144 to 158 instead of 160 to 175, and a different coloration, the upper labial shields being marked with black bars corresponding to the sutures, and the quadrangular dark brown spots on the anterior part of the belly being absent.

The numbers of ventral and caudal shields are as follows in the specimens examined:—

♀.	Kia-ting-fu, Sze Chuen, 1070 f. (<i>Pratt</i>)	158+?
♀.	"	"	158+55
♂.	Son-p'an-ouei, Sze Chuen, 10,000 f. (<i>Styan</i>)	144+67
♂.	Yunnan Fu, 6000 f. (<i>Grakam</i>)	155+67
♀.	"	"	154+62

In a fresh condition this snake is olive-green above, with black and yellow or orange spots, the latter usually forming a vertebral series, at least on the posterior part of the body; a blackish streak along each side of the nape, sometimes united in a point on the occiput; an oblique black streak from the eye to the angle of the mouth; frequently a light cross-band between the eyes; loreal region and upper lip bright yellow or orange, the labial shields with black lines corresponding to the sutures between them; belly yellow or orange in front, uniform or speckled with blackish, greenish or dark greyish olive behind, more or less profusely speckled with black.

Total length 780 mm.; tail 140.